



Innovative finance mechanisms to scale up low-carbon technology: Insights from recent transactions

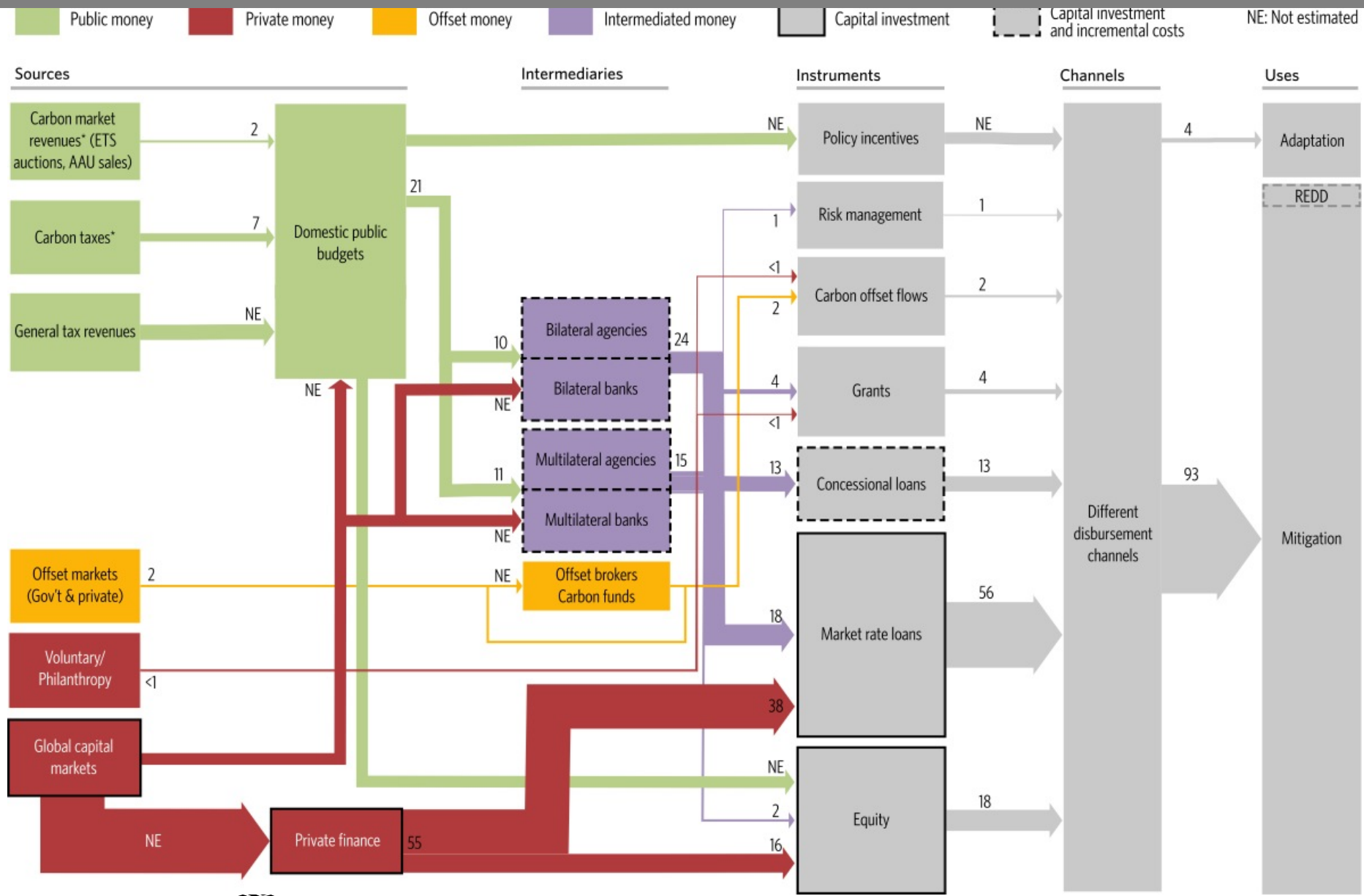
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Current Climate Finance Flows (in USD billion)



Notes: Figure presents indicative estimates of annual flows for the latest year available, 2009/2010 (variable according to the data source). Figures are expressed in USD billion and are rounded to produce whole numbers. Estimates spanning multiple years are adjusted to produce annual-equivalent estimates. Where ranges of estimates are available, the mid-point is presented. All flows are incremental except for those identified as full or partial 'capital investment'. Most data presented relate to commitments in a given year, due to limited availability of disbursement data. *Estimated carbon pricing revenues indicated are not necessarily wholly hypothecated for climate finance.

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Transaction: Nuru Energy



- **Scaling up LED Lighting in Sub-Saharan Africa through Carbon Finance and Microfinance**
Bank of America Merrill Lynch is financing Nuru Energy, a social enterprise providing an affordable and clean off-grid lighting LED system in sub-Saharan Africa. BofAML provides upfront capital via an option premium to purchase CERs. It also includes microfinance assistance, crucial given Nuru's business model. The option premium provides Nuru capital to scale up its operations while the option strike price and upside sharing features allow it to secure revenue from sale of credits. Microfinance unlocks start-up capital for micro-franchise entrepreneurs
- **WHY**
 - Explicit shift in EU ETS policy towards LDCs; synergy between CDM and microfinance businesses; households save up to 40% of their income, LED is a leap-frog technology (replacing kerosene); new green jobs for local entrepreneurs earning in 20 minutes what they previously earned in a day
- **STATUS**
 - BofAML-Nuru Energy transaction closed in Q1 2011; Hybrid approach to CDM using both small-scale project window and PoA to hedge methodological risks; first project in Rwanda
- **INSIGHTS**
 - Barriers remain where policy intervention would help: removal/reduction of kerosene subsidies; equal VAT treatment for the competing alternatives; free trade in low-carbon technologies

Transaction: CleanStar Mozambique



- **Accelerating Deployment of Clean Cooking Stoves and Alternative Fuel in Mozambique**
Bank of America Merrill Lynch is financing CleanStar Mozambique (CSM), a joint venture between CleanStar Ventures and Novozymes, the world leader in enzymes. CSM is an integrated food, energy and forest protection business which retails clean cook stoves and bottled liquid cooking fuel to low-income households in Mozambique's capital Maputo, as a safe and affordable alternative to charcoal.
- **WHY**
 - Explicit shift in EU ETS policy towards LDCs; UN Sustainable Energy for All; Energy+ Initiative; the venture is an effective way of simultaneously tackling five key issues prevalent in sub-Saharan Africa: energy access, rural development, food and nutrition security, deforestation, and the health problems arising from urban indoor charcoal combustion
- **STATUS**
 - BofAML-CSM transaction closed in Q4 2011; Likely first registered CDM project in Mozambique; Global Alliance for Clean Cookstoves assisting with VAT treatment of clean cooking fuel
- **INSIGHTS**
 - Extensive due diligence on percentage non-renewable biomass and baseline efficiency of existing stoves. CDM EB has adopted default data from 2004 that is not reflective of current state.

- **Scaling up Residential Energy Efficient Lighting in Mexico via CDM Programme of Activities (PoA)**
Bank of America Merrill Lynch is exclusive financial advisor to Cool NRG, an Australian company that developed the world's first registered CDM PoA. The PoA is currently the only mode of monetising the carbon benefits associated with Mexico's Luz Sustentable initiative, an attempt partly financed by the World Bank, to distribute up to 100 million compact fluorescent lights in some of the poorest households.
- **WHY**
 - Critical to ensure the success of PoA which represents second generation CDM
- **STATUS**
 - First CPA to issue CERs shortly; world's first Carbon Royalty Framework Agreement signed with Government of Mexico in Q4 2011; discussions ongoing with off-takers, lenders to finalise financing
- **INSIGHTS**
 - Compliance with World Bank procurement rules required separation of bulb distribution and carbon monetisation activity; Loan provider not keen on PoA CPA inclusions risk making collateral-based lending against CDM PoA a significant challenge; new restrictions imposed by US Dodd-Frank Act; CDM PoA rulebook and issuing process is very much a work in progress



Transaction: Rainforest Bond

- **Enabling Institutional Investors to Earn Returns from Rainforest Protection**

Bank of America Merrill Lynch has been working with several parties (a country with rainforest assets, an MDB issuer, community-based organisation) to structure and arrange an innovative rainforest bond where investors receive annual coupons in the form of monetised payments for ecosystem services, including REDD+ credits that meet agreed standards.

- **WHY**

- Given state of climate change negotiations, REDD+ is a mechanism that needs a long-term view; bond investors may be willing to take a longer-term perspective; institutional investors represent a significant untapped source of private capital to address climate change

- **STATUS**

- Commercial negotiations ongoing; investor appetite untested in recent market conditions

- **INSIGHTS**

- MDB's AAA rating of bond and principle protection are important features for institutional investors; Challenge for issuer in being able to mark-to-market ecosystem swap where value is based on relatively illiquid and ill-defined assets; Structuring is complex to balance risks and returns for investor, country, and financial institution

Transaction: Terrapass



- **Accelerating Livestock Manure Management at US Dairies**

Bank of America Merrill Lynch is financing Terrapass, a US based project developer of livestock manure management systems. BofAML provides upfront capital to purchase carbon credits from a portfolio of dairy farms implementing livestock manure management systems that reduce emissions of methane by substituting biogas for fossil-fuel based power. The resulting credits are eligible under California AB-32 and allow us to offer clients power-fuel-carbon risk management.

- **WHY**

- Financial intermediaries can play a crucial role to play in providing structured finance to support development of the carbon offsets market

- **STATUS**

- BofAML-Terrapass transaction closed in Q3 2011; First six projects already contracted and several others in project pipeline – total pool of more than 2,500 potential US dairy farms (19 million tonnes of emissions) could be addressed

- **INSIGHTS**

- Legal due diligence originally revealed deficiencies in credit transfer mechanics. Subsequent engagement with registry has improved market infrastructure; concerns on buyer liability for offsets remain and have hindered development of exchange-based contracts for California carbon offsets





Insights for Durban negotiations

- There is consensus that the private sector has a key role to play in financing the shift to a low-carbon economy.... so the limited public finance available must incentivise a massive amount of private investment
- For Durban to be considered a success, it must mobilise the capital markets and not just in OECD countries. Carbon markets are one effective way to do this.
- Venture capital, private equity, public markets, and asset financing (including carbon market and REC) all have roles. Emerging market clean energy companies, including low-carbon social enterprises, are a growing force reversing the typical “North-South” concept of technology transfer.
- Credible and ambitious targets, whether agreed through UN process or bottom-up, are a necessary underpinning to provide demand for emission reductions
- Existing financial mechanisms such as CDM must be retained and reformed
- New financial mechanisms such as REDD+ must achieve an adequate risk/reward balance for private investors or risk becoming white elephants
- New proposed institutions such as the Green Climate Fund must focus on mobilising private capital



Sample Transactions Led by BofAML

February 2011



Carbon financing call option for CERs from LED light deployment with microfinance in East Africa

Originator



January 2010



Carbon financing thermal plant efficiency improvements, China 200K CERs

Originator



September 2010



Advisory mandate for CDM Programme of Activities, Luz Sustentable, Mexico.

Originator



October 2011



Carbon financing call option and route to market for portfolio of CRTs from US agricultural methane

Originator



November 2011



Carbon financing call option and RTM for CERs from clean cooking stove + fuel venture in Mozambique

Originator



November 2008



Carbon financing for wind project in China 213,000 tonnes CERs

Originator



September 2008

Aceh Ulu Masen avoided deforestation Project

Carbon finance for an avoided deforestation project, Indonesia

Originator



August 2008

\$15m



NATSOURCE

Lead Advisor Syndicated Loan

Originator



July 2008



Carbon financing for five wind projects in China 2 million tonnes CERs

Originator





External Recognition for BofAML

A Leader in Creating Innovative Financial Solutions to Combat Climate Change



Awarded **Most Innovative in Sustainability** by The Banker in 2008 for our deal to protect forests in Aceh, Indonesia.



Received Special Commendation for **Achievement in Financing at the Base of the Pyramid** for carbon finance/microfinance deal with Nuru Energy at the 2011 *Financial Times*' sustainable finance awards.

Environmental Finance magazine hailed two Bank of America Merrill Lynch transactions in 2008 for their environmental excellence

- Our work to protect forests in Aceh, Indonesia was named **Carbon Finance Transaction of the Year**
- The \$654mm initial public offering that BofAML led for Hansen Transmissions International, a Belgium manufacturer of gearboxes for the wind turbine industry, was cited as **IPO of the Year**



Ceres, a national network of investors, environmental organizations and other public interest groups working to address sustainability challenges, named Bank of America Merrill Lynch a **leading investment bank for climate change strategies**

CARBON DISCLOSURE PROJECT

In 2011, we were awarded **Best Performing Global Financial Institution** by CDP for our disclosure and leadership on climate change issues.



Awarded **Most Innovative in Climate Change** by The Banker in 2011 for our Nuru Energy carbon finance, Project AMP distributed solar financing, and IPO of Ameresco, a leading energy efficiency services company

